Information Needs of Residents During Inpatient and Outpatient Rotations: Identifying Effective Personal Digital Assistant Applications

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Background

Last year, we reported (2002 AMIA Proceedings, p 971) on how medical school residents report on their use of personal digital assistants (PDA) or hand held devices. We first surveyed 88 residents in six residency programs representing both generalist and specialist practices (Family Medicine, Internal Medicine, Neurology, Pediatrics, Radiology, and Surgery. Following our survey, we contacted some of these same residents for follow-up advantages and disadvantages of specific software applications, and what information residents would like to have on their PDAs.

Our survey and interview results included several specific advantages and disadvantages of PDA usage by residents. Advantages included: (1) many residents readily adapted the personal organizers (calendars. address books, to-do lists) to help keep track of their clinical tasks, and keeping in touch with patients, (2) commercial medical references (such as ePocrates) are used most by the surveyed residents to answer immediate medical questions. Perceived drawbacks include: (1) calculators and patient trackers that were not clearly able to be tailored to residents' needs, e.g., to limit and modify types of calculations to just those actually used, (2) physical size (both too small a display size, and too bulky overall), and (3) several residents mentioned a concern of becoming too dependent on one source of information, a source that was viewed as being too easy to lose or break.

Three broad patterns emerged. First, residents in all seven of our surveyed practices use PDAs and most surveyed residents use them on a daily basis; we conclude that PDAs are being widely used across the spectrum of generalist to specialty practices, regardless of whether a residency program specifically encourages PDA usage. Second, security and HIPAA compliance issues need to be addressed, in part by resident education about archiving PDA files. Lastly, PDAs may become even more widely used if clinical data specific to an individual resident can easily and securely be maintained on PDAs.

Design of Current Studies

Our current study builds on the above perceived needs: we will follow residents during portions of a clinical day. Preliminary observations in three clinical areas (Medical Intensive Care Unit (MICU), General Medicine Outpatient, and Family Medicine Outpatient) confirm the conclusions of our previous study. PDAs are used for: (1) medical references (e.g., five minute clinical consult, Infotriever) (2) pharmaceutical information (such as ePocrates), and (3) professional organization (calendar, address book). Our intention in this new study is to identify the overall flow of information and how PDAs might improve the information flow in clinical settings.

We choose to observe residents in both inpatient and outpatient clinics. We anticipate that PDAs will have different uses in these two settings; preliminary observations in one outpatient clinic (Family Medicine) suggests that PDAs are used during the doctor – patient interaction, specifically to suggest the importance of smoking cessation. Preliminary observations in an inpatient clinical setting (the MICU) suggest that PDAs are primarily used outside of patient rooms, e.g. to make medical calculations and to obtain diagnostic procedures.

We plan to observe residents during various parts of their days in order to develop a detailed understanding of what information sources (e.g., consultations, computer reports, paper charts) are available at different times and which sources are frequently used. This information will help us develop a pocket-sized, paper-based checksheet that the residents carry with them. The checksheet will help us identify which information sources are used, at various times and frequencies. Interviews with the residents using these checksheets should provide additional details of how utility of the resource, disadvantages of the resource, etc.

Specific Goals

The goals of our current study include: (1) direct observations of residents PDA usage to determine how this compares to our previous results (above), (2) determine if PDA usage varies between outpatient and inpatient clinics, (3) determine how different information sources are used in these clinics. Our long range goal includes considering how PDAs might improve the information gathering processes by identifying useful PDA applications, along with user interfaces residents find intuitive.